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Date 9-24-08
Project Champaign MGP
Project No. 62403053

1. ( ) FOR REVIEW & COMMENT
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NO. OF COPIES	DESCRIPTION
1	Revised text pages for Champaign Off-Site SIR
1	Revised Table 4-1
1	Revised Figures 3-1 and 6-1 through 6-5
1	CD of full Off-Site Investigation Report

REMARKS: Please replace the original pages with the enclosed revised pages. Thank you.

The CD contains the text, tables, figures, and appendices with the revisions.

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FROM Leslie Hoosier
TITLE Environmental Scientist

Per the guideline, the purging criteria were based primarily on the stabilization of water quality parameters. Water quality measurements of temperature, pH, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity were recorded during purging. All measurements were obtained using a water quality instrument fitted with a flow-through cell connected to the discharge side of a pump. During purging, the flow-through cell was inspected to insure no bubbles formed on the wall. The well was purged until indicator parameters stabilized over three consecutive readings.

Stabilization has been achieved after a minimum of three successive readings, in which pH is within +/- 0.1, conductivity is within +/- 3%, ORP is within +/-10mvs, DO is within +/-10%, and turbidity is within +/-10%. Dissolved oxygen and turbidity usually are the last parameters to stabilize. Therefore, stabilization achievement for turbidity was also based on being <25 ntu's.

Groundwater samples were collected from each monitoring well for laboratory analysis. Groundwater samples were analyzed for BTEX, PAHs, cyanide and metals. Samples to be analyzed for BTEX were collected first followed by PAHs, cyanide and metals. The bottles were labeled and placed on ice in a cooler provided by the laboratory.

3.8 Hydrogeologic Evaluation and Testing

Following the completion of wells, hydrogeologic testing was performed to characterize the hydrogeologic conditions. The testing included performing slug-testing on four of the intermediate monitoring wells for calculating Site hydraulic conductivity. Static groundwater level measurements were recorded and groundwater elevation contours were generated to depict the groundwater flow conditions at the Site. The groundwater contour maps for shallow and intermediate wells are illustrated in Figures 2-2, 2-3, and 2-4.

Slug testing consisted of the instantaneous introduction or removal of a stainless-steel rod or a slug into and out of each monitoring well. The instantaneous change in water level and the subsequent return of the water level to static conditions was recorded. Groundwater levels were monitored with an electronic water level indicator and a pressure transducer and data logger. Groundwater levels were monitored for a minimum of 10 minutes and until groundwater levels reached 90 percent of static conditions. Groundwater levels were not monitored beyond 60 minutes. The recorded data was evaluated using the Geraghty & Miller, Inc. model AQTESOLV™ to calculate a hydraulic conductivity at each well and the Site. AQTESOLV data sheets are included in Appendix D.

3.9 Shelby Tube Collection

Shelby tubes were collected from off-site properties for the preparation of potential vapor intrusion sampling. Shelby tubes were collected from borings B-845 and B-851. The following soil geotechnical parameters were collected using the following methods:

4 COMPREHENSIVE SITE INVESTIGATION FIELD INVESTIGATION

As required in IAC Section 740.425(b)(4), the following sections provide documentation of the field activities that were performed to characterize the Site. Investigation activities as defined in IAC Section 740 were performed during April through July 2008. In addition, certain activities defined in IAC Section 740 were performed during earlier investigations completed in 1986, 1990, 1997, 1998, and 2004 which are briefly summarized in Section 2.10. Greater detail regarding previous investigations is provided in the CSIR. Only those activities completed during 2008 are discussed in this section. The principal activities completed during 2008 included logging and sampling of probeholes, groundwater monitoring well installation, and groundwater sampling. The following sections address the activities in detail:

- Soil boring and sampling;
- Monitoring well installation;
- Well development and groundwater sampling;
- Investigation waste management and disposal; and
- Quality assurance / quality control activities.

4.1 Soil Boring and Sampling

As noted previously, several phases of soil sampling have been completed at and around the Site since initial investigation activities were initiated in 1986. Brief summaries relative to these previous activities are presented in Section 2. This section presents details relative to field activities completed during April through July 2008. Nine on-site and twenty-nine off-site soil boring locations were originally proposed in the OSIWP. Based on data obtained in the field, a total of fifty-two probeholes were completed (Figure 3-1).

Soil sampling was completed using a truck or track-mounted hydraulic hammer probe rig with Macro-Core samplers. The site engineer/geologist logged each sample and recorded information on field logging forms. Soil type, recovery, observations relative to odors and impacts were recorded. Soil samples were classified in accordance with ASTM Standard D2488-90 (Standard Practice for Description and Identification of soils (Visual-Manual Procedure)). Each sample was field screened for organic vapor concentrations using a PID and the results recorded in the field logs. A 4-foot long, 1 ½-inch diameter MacroCore™ sampler or a 5-foot long, 1 ½-inch diameter MacroCore™ sampler was advanced using direct-push methods. All probe locations were continuously sampled and samples were recovered in disposable acetate liners. Based on observations made during previous Site activities, probeholes were driven to a depth of at least 30 feet with the final termination depth determined in the field by the site geologist. Rationale for termination was based on lack of visual or olfactory impacted material. The maximum depth sampled was 34 feet.

to 17.5-feet bgs. No impact was noted below 20.0 ft bgs. Based on field measurements, the interval with the highest PID level was at 17.0 feet bgs.

B-836: Probehole B-836 was completed on April 8, 2008 to a total depth of 30.0 feet bgs at a location northwest of the Site. During drilling, diesel-like impact was observed in the boring. Previous property knowledge, and visual and odor observations identified it as non-MGP related, therefore, the three samples collected were not analyzed. No MGP-like odors or impact were noted in the boring. Diesel-like odors were noted from approximately 6- through 18-feet in the boring. Light impact was noted at 12.0 feet. The interval with the highest PID reading occurred at 9- to 10-feet bgs. Soil below 18.0 feet bgs did not appear to be impacted.

Summary: Fifty-two probeholes were completed to depths ranging from twenty- two to thirty-four feet. One probehole (B-841) was completed to a depth of only twenty-two feet to verify the presence of an impacted depth zone. One probehole (B-835) was logged only from 18.0 to 30.0 ft bgs to verify findings from the 2004 CSI. Visual or olfactory indications of impact were observed in twenty-two of the fifty-one probeholes. Impacted probeholes to the north of the former MGP Site consisted of the following eight probeholes: B-802, B-803, B-835, B-844, B-846, B-847, B-849, and B-850. Four probeholes (B-816, B-818, B-822, and B-823) located south or along the southern boundary of the former MGP Site contained observable impact. Impacted probeholes to the west or along the western Site boundary consisted of the following borings: B-827, B-828, B-829, B-831, B-832, B-833, B-838, and B-841. Borings B-834 and B-836, located northwest of the Site, contained diesel-like impacts not representative of MGP operations. B-834 also contained MGP-like impact at the greater than 10-foot depth interval. Borings completed to the east of the former MGP Site did not contain any observable impacts. Impact tended to be both greater and deeper surrounding the northern and western portions of the Site, including within the railroad right-of-way to the north.

4.2 Monitoring Well Installation

A total of five shallow monitoring wells were installed off-site to a depth of 15-feet bgs. Three of the wells were placed to the north of the railroad right-of-way (UMW 118, 119, and 120), one was placed approximately forty-five feet to the south of the MGP site boundary (UMW-121), and one well was placed approximately eighty feet west of the MGP (UMW-117). Well locations are illustrated on Figure 3-1. Each of the five shallow monitoring wells were installed using a track-mounted Geoprobe unit with 4.25-inch augers. The wells were screened from 5- to 15-feet in order to contact the shallow groundwater system.

A total of seven intermediate monitoring wells were installed off-site to a depth of 45-feet bgs, and one intermediate well was installed on-site in the former Hill Street right-of-way (UMW-304). One well (UMW-300) was installed approximately 175 feet north of the MGP boundary along Washington Street in the same location as boring B-851. A second well was placed in the former 6th Street right-of-way to the east of the Site

(UMW-301). A third well (UMW-305) was installed southeast of the Site near the intersection of 6th and Church Streets. Three wells (UMW-302, UMW-306, and UMW-307) were installed to the south of the former MGP. Well UMW-302 was placed south of the former MGP in the same area as UMW-121. Wells UMW-306 and UMW-307 were placed along the south side of Church Street. The seventh intermediate off-site well was placed along the 5th Street right-of-way west of the Site (UMW-303). The wells were installed using mud rotary with a screened interval from 35- to 45-feet bgs. Four of the wells were outer cased to a depth of approximately 29.5 feet bgs to prevent possible cross-contamination issues.

Wells were constructed of two-inch diameter PVC well screens and risers, with well screen slot size of 0.010 inches. The annular space was backfilled with sand pack to two feet above the top of the well screen. The remainder of the annular space was backfilled with bentonite grout. Each well was surged for 10 minutes after installation, and completed with a flush mount well protector. Well construction logs are included in Appendix C.

4.3 Well Development and Groundwater Sampling

As discussed in previous sections, groundwater monitoring wells were installed during Site investigation activities completed in 1990 and 1991. An additional thirteen wells were installed during 2008. Since 1990, a total of twenty-nine wells have been installed on and adjacent to the Site. During the intervening period, five of those wells have been abandoned. Figure 3-1 shows the locations of the twenty-six wells currently included in the groundwater monitoring program.

Wells installed during the 2008 investigation were developed prior to sampling. A minimum of three well volumes were purged using whale pumps and disposable tubing. Water quality parameters of temperature, pH, conductivity, and turbidity were recorded during purging. Water was purged until parameters were within +/- 10%. Approximately five well volumes were purged from some shallow wells in order to achieve stabilization. Groundwater samples were collected approximately two weeks after installation.

Since 1999, monitoring wells have been sampled on a quarterly basis and analyzed for select MGP constituents (primarily BTEX constituents and naphthalene). Table 2-2 presents a summary of groundwater sample results from previous monitoring events. A total of twenty-three wells were sampled in May 2008, and three wells were sampled in July 2008. The wells were sampled using the low-flow technique described in Section 3.7. Twenty six samples, two duplicate samples, and a trip blank were submitted to the laboratory for analysis. Table 5-11 presents a summary of the groundwater sampling results. Samples were collected in accordance with the OSIWP and the quarterly groundwater monitoring plan. Copies of the analytical results and field data sheets are included in Appendix E.

4.4 Laboratory Analytical Program

The off-site analytical program has been presented in Section 3 along with sample handling procedures and sampling rationale. One hundred sixty one soil samples and four duplicate samples were collected for laboratory chemical analysis from the probeholes advanced in 2008. Table 4-1 presents a summary of analyses completed for these samples. Twenty-six groundwater samples and two duplicate samples were collected from both on-site and off-site monitoring wells in May and July 2008. In addition, samples of investigation derived waste material, both liquid and solid, were collected and analyzed for disposal characteristics. All laboratory analyses were completed by TekLab. Results of laboratory analyses are discussed in detail in Sections 5 and 6 of this report.

Samples were protected from breakage and shipped in coolers. Coolers were transported and delivered under proper chain of custody to Teklab in Collinsville, Illinois. Ice was used to maintain a temperature of 4° C. A data quality objective (DQO) level III data package was delivered to PSC upon completion of analysis.

4.5 Management of Investigation Waste

All equipment and materials used in drilling, sampling, and monitoring well construction were decontaminated prior to use at the Site. In addition, all sampling equipment was decontaminated between samples and all drilling and geoprobe equipment decontaminated between boreholes.

All equipment and material coming into contact with potentially impacted material or the sample medium was decontaminated before, between, and after usage or properly discarded after becoming contaminated. Equipment was washed using a laboratory-grade detergent followed by clean water and distilled water rinses.

The following materials generated during investigation activities were containerized and stored on Site:

- Geoprobe – soils materials not used for analytical samples were placed in roll-off boxes;
- Well installation – soils materials and fluids generated during monitoring well installation were placed in roll-off boxes;
- Well development – water generated from development of monitoring wells was contained in 1,000-gallon poly tanks;
- Well purging – purge water from groundwater sampling was contained in 1,000-gallon poly tanks;
- Decontamination fluids – water and other fluids from equipment decontamination were contained on-site in 1,000-gallon poly tanks; and
- Disposable protective clothing and equipment was contained in roll-off boxes.

Upon completion of field activities all liquids and solids were sampled and analyzed for disposal parameters. Copies of the analytical results are included in Appendices D and E. Materials were subsequently disposed of at approved off-site facilities.

4.6 Off-Site Investigation Quality Assurance Activities

During field activities, certain records were maintained in logbooks and/or on field forms for sampling events and daily activities during the investigations. The following sections describe the major documentation and record keeping activities.

Each sample collected for chemical analysis was assigned a specific identifier based upon the sample location and depth designation. The specific designation for groundwater and soil samples was based upon the monitoring well or borehole number.

Each sample submitted for chemical analysis was properly sealed immediately after collection. All sample containers were labeled to prevent misidentification of samples. The label included at a minimum the following information:

- date and time of collection;
- location;
- depth interval (if applicable);
- sample number; and
- requested analyses.

All groundwater characterization samples were placed on ice immediately following field collection to lower the fluid temperature and minimize the amount of physicochemical change of the sample before submittal to the analytical laboratory. All containers in a groundwater sample set were additionally identified to indicate each as a part of a specific set.

All information pertinent to daily field activities and personnel was recorded in a field logbook (or series of logbooks). The field logbook is a bound book with consecutively numbered pages. Field logbooks were completed in a thorough manner so that later modifications or additions were not necessary. These logbooks became a part of the permanent file for the investigation.

Entries in the field logbooks detailed three basic categories of information:

- site activities log – site visits, site reconnaissance (specific purpose), daily activities, documentation of procedures, and environmental monitoring data;
- personnel log – All PSC personnel, contractors, or oversight present on-site during investigation activities; and
- sampling data log – Documentation of soil impacts observed during logging procedures, pre-sampling well development/evacuation data (applies to sampling monitoring wells).

Site activity entries were completed on a daily basis to record all relevant Site investigation information. The field logbook was kept throughout the field sampling

operations to document relevant information concerning sample generation, preparation, and field data. All well development/flushing data, sampling activities, and measurement data, were recorded on specified forms. The original field data sheets became part of the permanent file for the investigation, and copies are included in Appendix B.

5 CHEMICAL ANALYTICAL RESULTS

Chemical analyses were performed on soil and groundwater samples obtained during off-site investigation activities completed during 2008. Samples were delivered under proper chain of custody to TekLab in Collinsville, Illinois. Analytical parameters included BTEX, PAHs, cyanide, metals (arsenic, chromium, and lead), f_{oc}, and pH. Analyses specific to each sample are discussed in subsequent sections. Samples of both liquid and solid investigation derived wastes were also collected and analyzed for disposal characteristics.

5.1 Analytical Program Summary

The off-site analytical program was developed to provide sufficient data to delineate off-site environmental impacts and facilitate comparison with Tier 1 ROs as presented in Tables 5-1 through 5-6. A third objective was to provide sufficient data to allow subsequent development of remedial objectives and a RAP.

Table 4-1 presents a summary of the offsite soil analytical program. The following is a summary of analyses completed for soil samples during the 2008 off-site investigation:

- BTEX (SW 846, Method 8260B) – 165 analyses
- PAHs (SW 846, Method 8270 SIMS) – 165 analyses
- Metals (SW 846, 6010B Series) –63 analyses
- Cyanide (SW 846, Method 9010/9014) – 63 analyses
- Fraction Organic Content (f_{oc}) (ASTM D2974-87) – 14 analyses
- pH (SW 846 Method 9045C) – 16 analyses
- OA1 (SW 846 8260B) – 1 analysis
- OA2 (SW 846 8015B) – 3 analyses

Based on the subsequent objective of evaluation in accordance with TACO guidance, the soil sample analytical data are divided into three general groups. These groups include surface (0- to 3-feet bgs), shallow subsurface (3- to 10-feet. bgs), and deep subsurface soils (greater than 10-feet bgs). The following subsections present a discussion of analytical results based on these depth intervals. A detailed evaluation of the results as compared to Tier 1 Remedial Objectives and exposure routes are presented in Section 6.

5.2 Surface Soil Results

Forty-four samples, not including two duplicates, were collected from the 0- to 3- foot depth interval during the investigation. All samples were analyzed for BTEX and PAHs, and twenty samples were analyzed for metals and cyanide.

5.2.1 BTEX and PAH Results

Table 5-1 presents a summary of BTEX and PAH results for all surface soil samples collected during the off-site investigation activities. Laboratory analytical data sheets for all soil samples are presented in Appendix D.

One elevated benzene concentration was detected on-site in boring B-829 located along the western Site boundary within the area of former MGP operations. No elevated BTEX concentrations were detected in off-site soils in the 0- to 3-foot depth interval.

Elevated or high levels of PAHs were detected in nine (two on-site and six off-site) of the surface soil samples collected. One of the samples was collected on-site along the southern boundary near former gas holder GH-2 from boring B-818. A second sample containing elevated levels of PAHs was collected from boring B-829 located along the western Site boundary. The highest PAH concentrations were detected in a soil sample retained from boring B-831, located on the west site of 5th Street approximately seventy feet west of the former main area of operations.

5.2.2 Metals and Cyanide Results

Table 5-2 presents results for metals and cyanide analyses for surface soil samples. Twenty surface soil samples were analyzed for arsenic, chromium, lead, and cyanide. Laboratory analytical data sheets are presented in Appendix D.

An elevated level of arsenic was detected in one surface soil sample collected from boring B-805, located to the north of the Site. Chromium was detected in one sample from boring B-839, located west of 5th Street approximately eighty feet west of the former main area of operations. Elevated lead levels were detected in seven soil samples. The highest lead concentration was detected in a soil sample retained from boring B-819, located south of the Site approximately sixty feet south of former gas holder GH-3.

5.3 Shallow Subsurface Soil Results

Fifty-one samples were collected from the 3 to 10 ft depth interval during the 2008 investigation. All fifty-one samples were analyzed for BTEX and PAH constituents. Twenty-six samples were analyzed for arsenic, chromium, lead, and cyanide.

5.3.1 BTEX and PAH Results

Table 5-3 presents a summary of BTEX and PAH results for all shallow subsurface soil samples collected during off-site investigation activities. Laboratory analytical data sheets for all shallow subsurface soil samples are presented in Appendix D.

Elevated benzene levels were detected in samples from four off-site soil boring locations and three on-site locations. The highest BTEX concentrations were detected in samples retained from off-site boring B-831 which is located west of the Site, and from on-site boring B-833 which is located along the western property boundary.

High PAH concentrations were detected in samples retained from borings B-800 and B-802 located to the north of the Site, boring B-831 located to the west of the Site, and boring B-833 located along the western boundary of the Site. Of the four borings, PAH concentrations from B-831 were the highest. No elevated PAH levels were detected to the south or east of the former MGP site in the 3- to 10-foot depth interval.

5.3.2 Metals and Cyanide Results

Table 5-4 presents results of analyses for metals and cyanide for shallow subsurface soil samples. Twenty-six shallow subsurface soil samples were analyzed for arsenic, chromium, lead, and cyanide. Laboratory analytical data sheets are presented in Appendix D.

One slightly elevated chromium concentration was detected in a sample retained from boring B-839, located to the west of the Site. No high levels of metals or cyanide were identified in any other sample from the 3- to 10-foot depth interval.

5.4 Deep Subsurface Soil Results

Sixty-eight soil samples, including two duplicates, were collected from a depth of greater than 10- feet bgs during the 2008 investigation. All sixty-eight samples were analyzed for BTEX and PAH constituents. Nineteen samples were analyzed for arsenic, chromium, lead, and cyanide.

5.4.1 BTEX and PAH Results

Table 5-5 presents a summary of BTEX and PAH results for all deep subsurface soil samples collected during off-site investigation activities. Laboratory analytical data sheets for all soil samples are presented in Appendix D.

Elevated levels of one or more BTEX parameter was reported in twenty out of the sixty-eight deep subsurface soil samples. The highest BTEX concentrations were detected in samples retained from boring B-850, located to the north of the Site in the railroad right-of-way.

At least one elevated PAH constituent was reported in sixteen of the sixty-eight deep subsurface soil samples. The highest PAH concentrations were detected in samples retained from soil boring B-850.

5.4.2 Metals and Cyanide Results

Table 5-6 presents results of analyses for metals and cyanide for deep subsurface soil samples. Nineteen deep subsurface soil samples were analyzed for arsenic, chromium, lead, and cyanide. Laboratory analytical datasheets are presented in Appendix D.

No elevated levels of metals or cyanide were detected in samples collected from the greater than 10-foot depth interval.

5.5 Total Petroleum Hydrocarbons

Visual and olfactory observations during logging of four soil borings north and northwest of the Site indicated a diesel-like substance present in surface and shallow subsurface soils. Based upon these observations, three soil samples were analyzed for total petroleum hydrocarbons (TPH).

Diesel fuel and motor oil were detected in soil samples retained from boring B-834. The gasoline range organics (GRO) concentration was 14.90 mg/kg. Diesel fuel was also detected in samples retained from borings B-847 and B-850, as well as motor oil in boring B-850. Copies of the analytical results for the analyses are included in Appendix D.

5.6 Groundwater Results

Twenty-six wells were sampled and analyzed for BTEX, PAHs, metals (arsenic, chromium, lead), and cyanide. Two duplicate samples were also collected for QA/QC purposes. Analytical results are presented in Table 5-11. Laboratory analytical data sheets are presented in Appendix E.

Samples collected from well UMW-114 (located on-site near former gas holder GH-3) contained elevated concentrations of benzene, ethylbenzene, naphthalene, and cyanide. Samples collected from well UMW-302 located south of the Site also contained elevated levels of benzene and naphthalene.

Groundwater results from the 2004 CSI are presented in Table 5-10 for comparison purposes.

5.7 QA/QC Analytical Summary

Duplicate samples were collected for both soil and groundwater samples. Duplicate soil samples are presented with off-site investigation sample results in Tables 5-1 through 5-6. It is noted that due to the lack of homogeneity of soil materials, duplication of analytical results is virtually impossible. In general, the correlation between the primary sample results and duplicate sample results is good. The BTEX and PAH constituents identified in most samples and the levels identified in the duplicate are consistent with levels in the primary sample. Complete laboratory results for all duplicate soil samples are included in Appendix D. Analytical results for duplicate groundwater samples are included in Table 5-11. Laboratory QA/QC reports for all soil analyses are presented in Appendices D and E.

5.8 Geotechnical Parameters

Fourteen samples were analyzed for f_{oc} and sixteen samples were analyzed for pH during 2008. The laboratory results are presented on tables 5-7 through 5-9. Geotechnical data will be utilized for a vapor intrusion sampling event at a few residential locations that will be conducted as a follow up to the off-site investigation.

Table 4-1
Champaign Former MGP
2008 Off-Site Investigation Soil Analytical Summary

Boring Number	Date Completed	Depth (Feet)	Teklab WO Number	Analytical Parameters							
				BTEX	PAHs	Metals*	CN**	f_{oc}	pH	OA1	OA2
B - 800	4/14/2008	2 - 3	08040620	X	X	X	X	X	X		
	4/14/2008	9 - 10	08040620	X	X			X	X		
	4/14/2008	11.5 - 12.5	08040620	X	X			X	X		
B - 801	4/8/2008	2 - 3	08040412	X	X				X		
	4/8/2008	9 - 10	08040412	X	X				X		
	4/8/2008	25 - 26	08040412	X	X				X		
B - 802	4/15/2008	2 - 3	08040620	X	X						
	4/15/2008	8.5 - 10	08040620	X	X	X	X				
	4/15/2008	14.5 - 15.5	08040620	X	X	X	X				
	4/15/2008	25 - 26	08040620	X	X						
B - 803	5/7/08	2.0 - 3.0	08050415	X	X	X	X				
	5/7/08	9.0 - 10.0	08050415	X	X	X	X				
	5/7/08	21.0 - 22.0	08050415	X	X	X	X				
	5/7/08	29.0 - 30.0	08050415	X	X						
B - 804	4/8/2008	1.5 - 2.5	08040412	X	X	X	X				
	4/8/2008	8.5 - 9.5	08040412	X	X	X	X				
	4/8/2008	15 - 16	08040412	X	X						
B - 805	4/9/2008	1 - 2	08040412	X	X	X	X				
	4/9/2008	7 - 8	08040412	X	X	X	X				
	4/9/2008	13 - 14	08040412	X	X	X	X				
B - 806	4/8/2008	2 - 3	08040412	X	X						
	4/8/2008	8.5 - 9.5	08040412	X	X			X			
	4/8/2008	11 - 12	08040412	X	X	X	X	X			
B - 807	4/8/2008	2 - 3	08040412	X	X						
	4/8/2008	8.5 - 9.5	08040412	X	X	X	X				
	4/8/2008	13 - 14	08040412	X	X	X	X		X		
B-807 DUP	4/8/2008	2 - 3	08040412	X	X						
B - 808	Boring Not Completed										
B - 809	5/8/08	2.0 - 3.0	08050415	X	X	X	X		X		
	5/8/08	9.0 - 10.0	08050415	X	X	X	X		X		
	5/8/08	15.0 - 16.0	08050415	X	X	X	X				
B - 810	Boring Not Completed										
B - 811	5/5/08	2.0 - 3.0	08050415	X	X	X	X				
	5/5/08	9.0 - 10.0	08050415	X	X	X	X				
	5/5/08	11.0 - 12.0	08050415	X	X	X	X				
B - 812	5/5/08	1.0 - 2.0	08050415	X	X						
	5/5/08	9.0 - 10.0	08050415	X	X						
	5/5/08	11.0 - 12.0	08050415	X	X						
B - 813	4/7/2008	2 - 3	08040412	X	X						
	4/7/2008	6 - 7	08040412	X	X						
	4/7/2008	11-12	08040412	X	X						
B - 814	4/1/2008	0 - 2	08040186	X	X	X	X	X			
	4/1/2008	7 - 8	08040186	X	X	X	X	X			
	4/1/2008	17 - 18	08040186	X	X						
B - 815	4/7/2008	2 - 3	08040412	X	X	X	X				
	4/7/2008	7 -8	08040412	X	X	X	X				
	4/7/2008	25 - 26	08040412	X	X	X	X				
B - 816	4/1/2008	1 - 2	08040186	X	X						
	4/1/2008	9 - 10	08040186	X	X						
	4/1/2008	19 - 21	08040186	X	X						
B - 817	4/7/2008	2 - 3	08040412	X	X	X	X	X	X		
	4/7/2008	8 - 9	08040412	X	X	X	X	X	X		
	4/7/2008	26 - 27	08040412	X	X	X	X		X		
B - 818	4/1/2008	2 - 3	08040186	X	X						
	4/1/2008	7 - 9	08040186	X	X	X	X				
	4/1/2008	13 - 15	08040186	X	X	X	X				
	4/1/2008	24 - 26	08040186	X	X						
B - 819	4/7/2008	2 - 3	08040412	X	X	X	X				
	4/7/2008	8.5 - 9.5	08040412	X	X	X	X				
	4/7/2008	28 - 29	08040412	X	X	X	X				

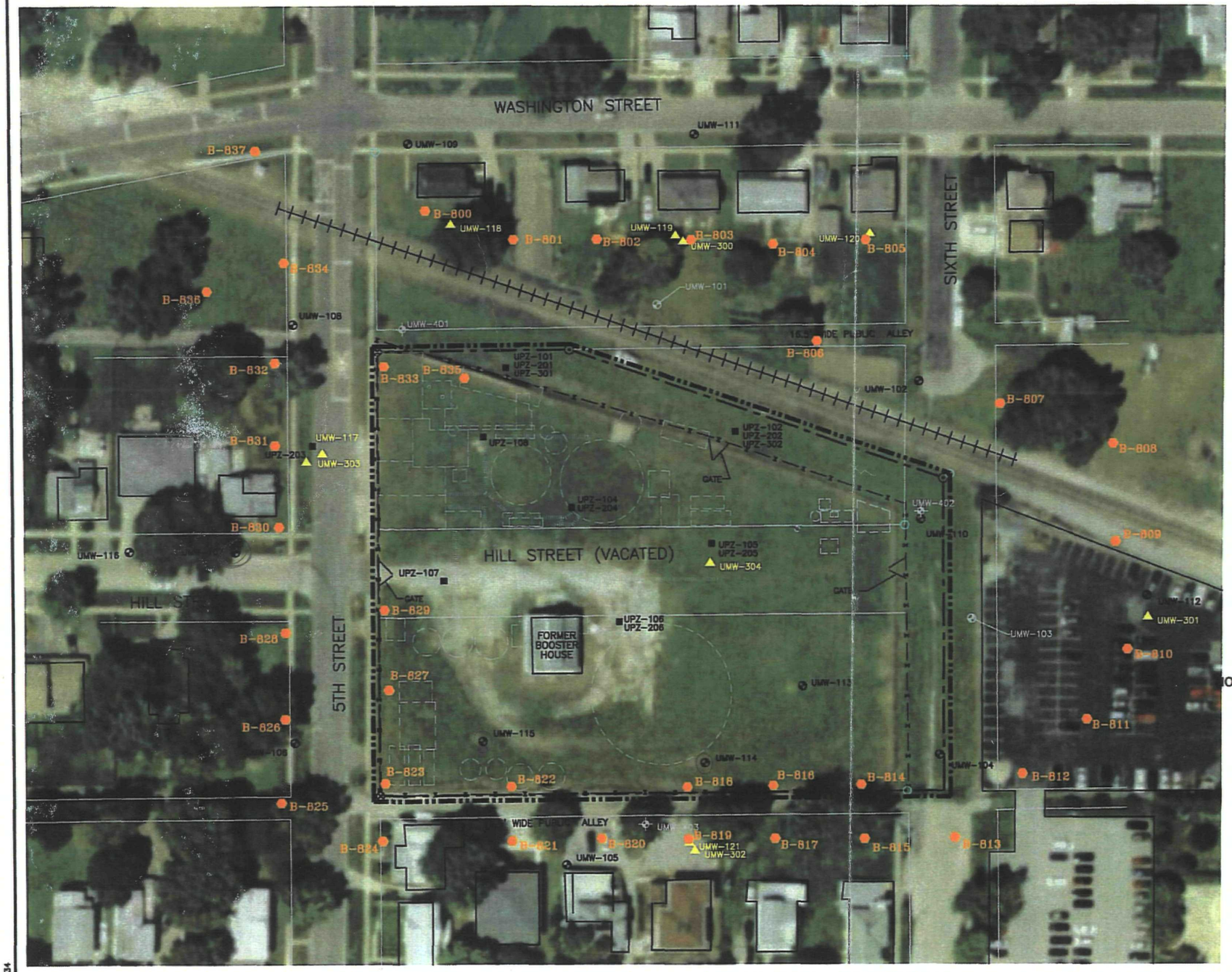
Table 4-1
Champaign Former MGP
2008 Off-Site Investigation Soil Analytical Summary

Boring Number	Date Completed	Depth (Feet)	Teklab WO Number	Analytical Parameters							
				BTEX	PAHs	Metals*	CN**	f_{oc}	pH	OA1	OA2
B - 820	4/4/2008	1 - 2	08040238	X	X						
	4/4/2008	8.5 - 9.5	08040238	X	X						
	4/4/2008	25 - 26	08040238	X	X						
B - 821	4/4/2008	0.5 -3	08040238	X	X						
	4/4/2008	9 - 10	08040238	X	X						
	4/4/2008	19 - 20	08040238	X	X						
B - 822	4/1/2008	1 - 3	08040186	X	X	X	X				
	4/1/2008	6 - 8	08040186	X	X	X	X				
	4/1/2008	7 - 8	08040184	X	X						
	4/1/2008	13 - 15	08040184	X	X	X	X				
	4/1/2008	27 - 28	08040184	X	X						
B - 823	4/1/2008	3 - 4	08040184	X	X						
	4/1/2008	9 - 10	08040184	X	X						
	4/1/2008	13 - 15	08040184	X	X						
B - 824	4/4/2008	1 - 3	08040238	X	X	X	X				
	4/4/2008	9 - 10	08040238	X	X	X	X				
	4/4/2008	23 - 24	08040238	X	X	X	X				
B - 825	4/3/2008	2 - 3	08040238	X	X						
	4/3/2008	8 - 9	08040238	X	X						
	4/3/2008	18 - 19	08040238	X	X						
	4/3/2008	25 - 26	08040238			X	X				
B - 826	4/3/2008	2 - 3	08040238	X	X						
	4/3/2008	8 - 9	08040238	X	X				X		
	4/3/2008	16 - 17	08040238	X	X				X		
B-827	4/2/2008	2 - 3	08040187	X	X						
	4/2/2008	7 - 8	08040187	X	X						
	4/2/2008	12 - 13	08040187	X	X						
	4/2/2008	26 - 28	08040187	X	X						
B-827 DUP	4/2/2008	12 - 13	08040187	X	X						
B-828	4/3/2008	2 - 3	08040238	X	X						
	4/3/2008	9 - 10	08040238	X	X						
	4/3/2008	12 - 13	08040238	X	X						
	4/3/2008	17 - 18	08040238	X	X						
B-828 DUP	4/3/2008	2 - 3	08040238	X	X						
B-829	4/2/2008	2 - 3	08040185	X	X						
	4/2/2008	6 - 7	08040185	X	X	X	X				
	4/2/2008	21 - 22	08040185	X	X						
B-830	4/3/2008	2 - 3	08040238	X	X						
	4/3/2008	8 - 9	08040238	X	X						
	4/3/2008	28 - 30	08040238	X	X	X	X				
B-831	4/3/2008	1 - 3	08040238	X	X	X	X				
	4/3/2008	9 - 10	08040238	X	X	X	X				
	4/3/2008	10.5 - 12.0	08040238	X	X						
	4/3/2008	18 - 20	08040238	X	X						
B-832	4/4/2008	2 - 3	08040238	X	X	X	X				
	4/4/2008	7 - 8	08040238	X	X	X	X		X		
	4/4/2008	20 - 21	08040238	X	X						
B-833	4/2/2008	2 - 3	08040185	X	X						
	4/2/2008	9 - 10	08040185	X	X	X	X				
	4/2/2008	10 - 12	08040185	X	X						
	4/2/2008	25 - 26	08040185	X	X						
	4/2/2008	31 - 32	08040185	X	X						
B-833 DUP	4/2/2008	10 - 12	08040185	X	X						
B-834	4/4/2008	1 - 2	08040412	X	X						
	4/4/2008	6 - 7	08040412	X	X						
	4/4/2008	11 - 12.5	08040412	X	X					X	X
	4/4/2008	15 - 16	08040412	X	X						
	4/4/2008	21 - 22	08040412	X	X						
B-835	4/3/2008	28 - 29	08040238	X	X	X	X				
B-836	Logged: No Samples Collected										
B-837	4/14/2008	0.5 - 2	08040620	X	X	X	X				
	4/14/2008	9 - 10	08040620	X	X	X	X				
	4/14/2008	12 - 13	08040620	X	X						

Table 4-1
Champaign Former MGP
2008 Off-Site Investigation Soil Analytical Summary

Boring Number	Date Completed	Depth (Feet)	Teklab WO Number	Analytical Parameters							
				BTEX	PAHs	Metals*	CN**	f_{oc}	pH	OA1	OA2
B-838	4/4/2008	1 - 2	08040238	X	X						
	4/4/2008	9 - 10	08040238	X	X						
	4/4/2008	15 - 16	08040238	X	X						
	4/4/2008	29 - 30	08040238	X	X						
B-839	4/14/2008	2 - 3	08040620	X	X	X	X				
	4/14/2008	6 - 7	08040620	X	X	X	X				
	4/14/2008	16 - 17	08040620	X	X						
B-840	4/15/2008	1 - 2	08040620	X	X						
	4/15/2008	7 - 8	08040620	X	X						
	4/15/2008	18 - 19	08040620	X	X						
B-841	Logged; No Sample Collected										
B-842	Boring Not Completed										
B-843	5/6/2008	2.0 - 3.0	08050415	X	X	X	X				
	5/6/2008	7.0 - 8.0	08050415	X	X	X	X				
	5/6/2008	10.0 - 11.0	08050415	X	X						
B-844	5/6/2008	1.0 - 2.0	08050415	X	X	X	X				
	5/6/2008	8.0 - 9.0	08050415	X	X	X	X				
	5/6/2008	15.0 - 16.0	08050415	X	X						
B-845	5/6/2008	0.0 - 2.0	08050896					X			
	5/6/2008	2.0 - 4.0	08050896					X			
	5/6/2008	6.0 - 7.0	08050415	X	X	X	X				
	5/6/2008	13.0 - 14.0	08050415	X	X						
B-846	5/7/2008	8.5 - 9.5	08050415	X	X						
	5/7/2008	10.0 - 11.0	08050415	X	X						
	5/7/2008	20.0 - 21.0	08050415	X	X						
B-847	5/7/2008	6.0 - 7.0	08050415	X	X						
	5/7/2008	22.0 - 23.0	08050415	X	X						X
	5/7/2008	29.0 - 30.0	08050415	X	X						
B-848	5/7/2008	2.0 - 3.0	08050415	X	X						
	5/7/2008	9.0 - 10.0	08050415	X	X						
	5/7/2008	13.0 - 14.0	08050415	X	X						
B-849	5/7/2008	0.0 - 1.0	08050415	X	X	X	X				
	5/7/2008	9.0 - 10.0	08050415	X	X	X	X				
	5/7/2008	16.0 - 17.0	08050415	X	X	X	X				
B-850	5/8/2008	8.0 - 9.0	08050415	X	X	X	X				
	5/8/2008	16.0 - 17.0	08050415	X	X	X	X				X
	5/8/2008	25.0 - 26.0	08050415	X	X						
B-851	5/9/2008	14.0 - 16.0	08050896					X			
	5/9/2008	19.0 - 20.0	08050896					X			
	5/9/2008	19.0 - 20.0	08050415	X	X						
B-852	5/9/2008	2.0 - 3.0	08050415	X	X	X	X				
	5/9/2008	9.0 - 10.0	08050415	X	X			X	X		
	5/9/2008	23.0 - 24.0	08050415	X	X						
B-853	6/23/2008	2.0 - 3.0	08060976	X	X						
	6/23/2008	4.0 - 5.0	08060976	X	X						
	6/23/2008	29.0 - 30.0	08060976	X	X						
B-854	6/24/2008	2.0 - 3.0	08060976	X	X						
	6/24/2008	7.0 - 8.0	08060976	X	X						
	6/24/2008	38.0 - 39.0	08060976	X	X						
B-855	6/26/2008	2.0 - 3.0	08060976	X	X						
	6/26/2008	6.0 - 7.0	08060976	X	X						
	6/26/2008	33.0 - 34.0	08060976	X	X						
TOTAL NUMBER OF SAMPLES COLLECTED:				156	156	63	63	14	16	1	4

*Metals include arsenic, chromium, and lead.
** Total and amenable cyanide



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES
- FORMER GAS PLANT PIPING
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- UPZ-102 / UPZ-202 / UPZ-302 — NESTED PIEZOMETERS (SHALLOW 5' TO 10', MEDIUM 20' TO 25', AND DEEP 30' TO 35') COMPLETED IN GLACIAL TILL
- UMW-113 — SHALLOW GROUNDWATER MONITORING WELLS (APPROXIMATELY 20') COMPLETED IN UPPER GLACIAL TILL
- UMW-401 — DEEP GROUNDWATER MONITORING WELLS (APPROXIMATELY 150') COMPLETED IN GLASFORD FORMATION
- WELLS THAT HAVE BEEN ABANDONED
- UMW-118 — PROPOSED NEW WELL LOCATIONS
- B-800 — PROPOSED NEW BORING LOCATION

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES IS NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

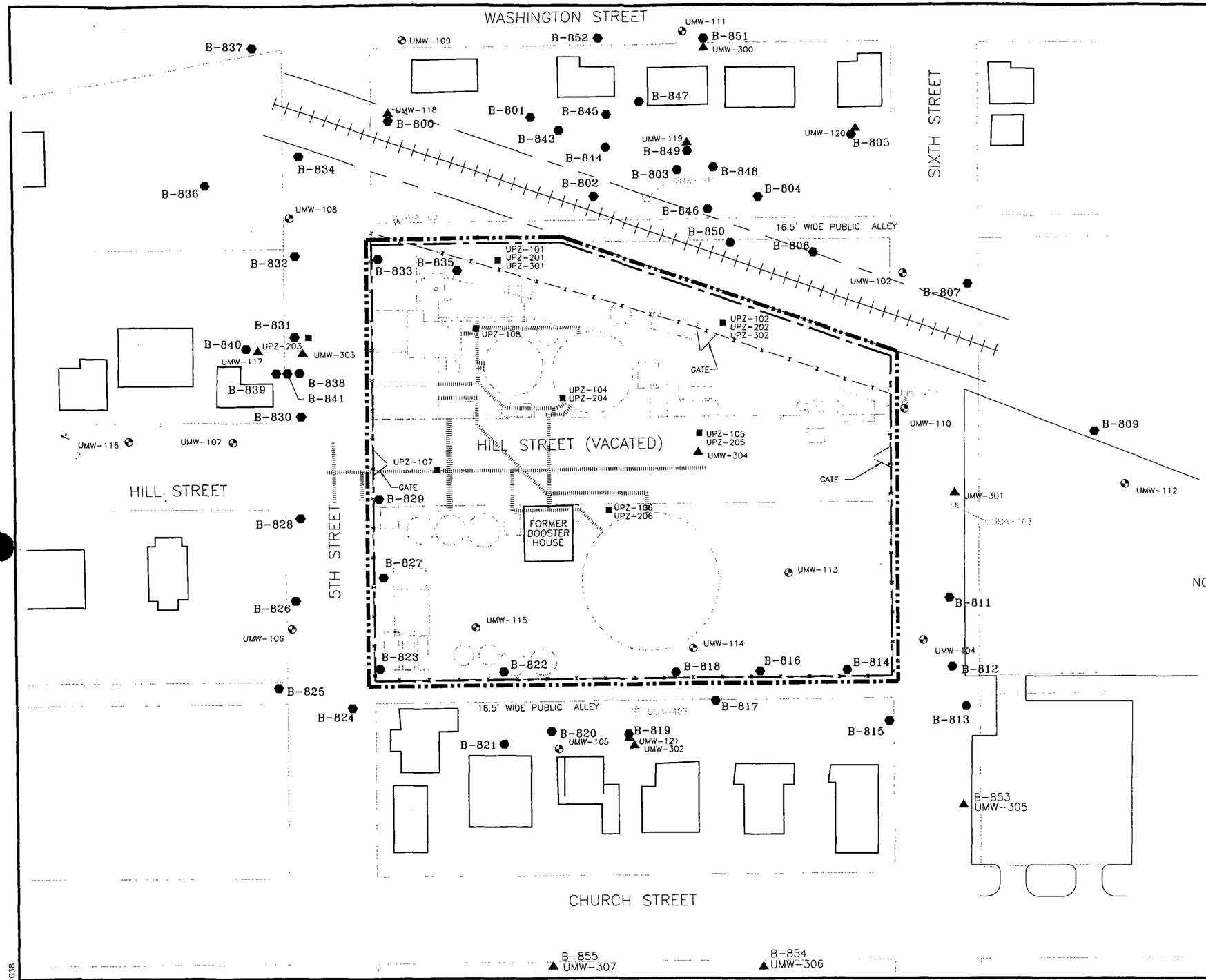
N

COL. J:\624\026478-034

PSC

TITLE:
PROPOSED MONITORING WELL AND BORING LOCATIONS

DWN: TMM	DES: MRC	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 2/4/08	REV:	FIGURE 1	



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- UPZ-102 / UPZ-202 / UPZ-302 — NESTED PIEZOMETERS (SHALLOW 5' TO 10', MEDIUM 20' TO 25', AND DEEP 30' TO 35') COMPLETED IN GLACIAL TILL
- UMW-113 — SHALLOW GROUNDWATER MONITORING WELLS (APPROXIMATELY 20') COMPLETED IN UPPER GLACIAL TILL (ACTIVELY MONITORED)
- UMW-401 — DEEP GROUNDWATER MONITORING WELLS (APPROXIMATELY 150') COMPLETED IN GLASFORD FORMATION
- WELLS THAT HAVE BEEN ABANDONED
- UMW-118 — NEW WELL LOCATIONS (ACTIVELY MONITORED)
- NOTE: B-800 — NEW BORING LOCATION

THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

N

PSC

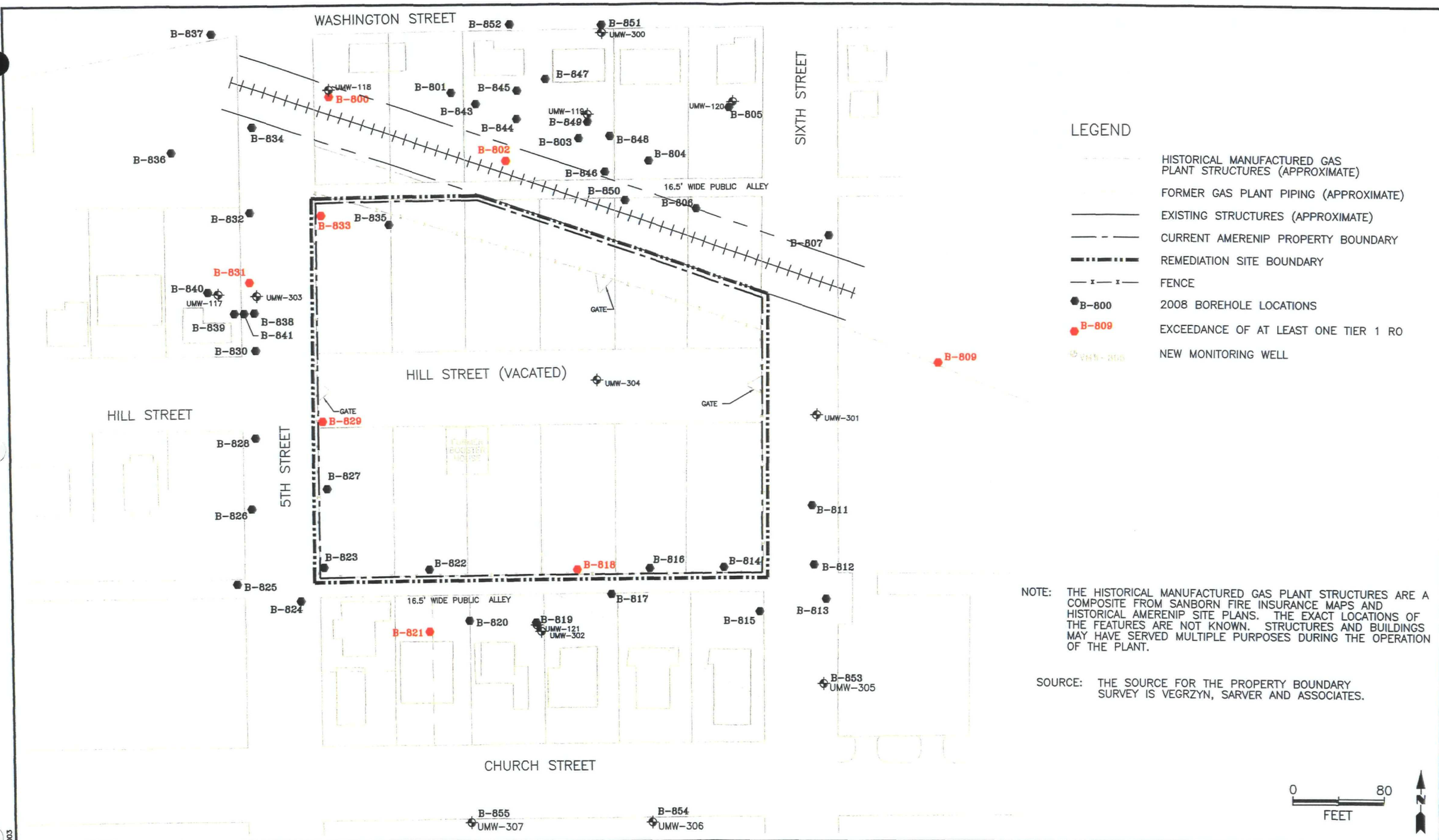
TITLE:
MONITORING WELL AND BORING LOCATIONS

DWN: TMM	DES: MRC
CHKD:	APPD:
DATE: 5/14/08	REV:

PROJECT NO: 62403053
AMERENIP
CHAMPAIGN, ILLINOIS

FIGURE 3-1

COL J:\624\02_038



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- B-800 2008 BOREHOLE LOCATIONS
- B-809 EXCEEDANCE OF AT LEAST ONE TIER 1 RO
- NEW MONITORING WELL

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

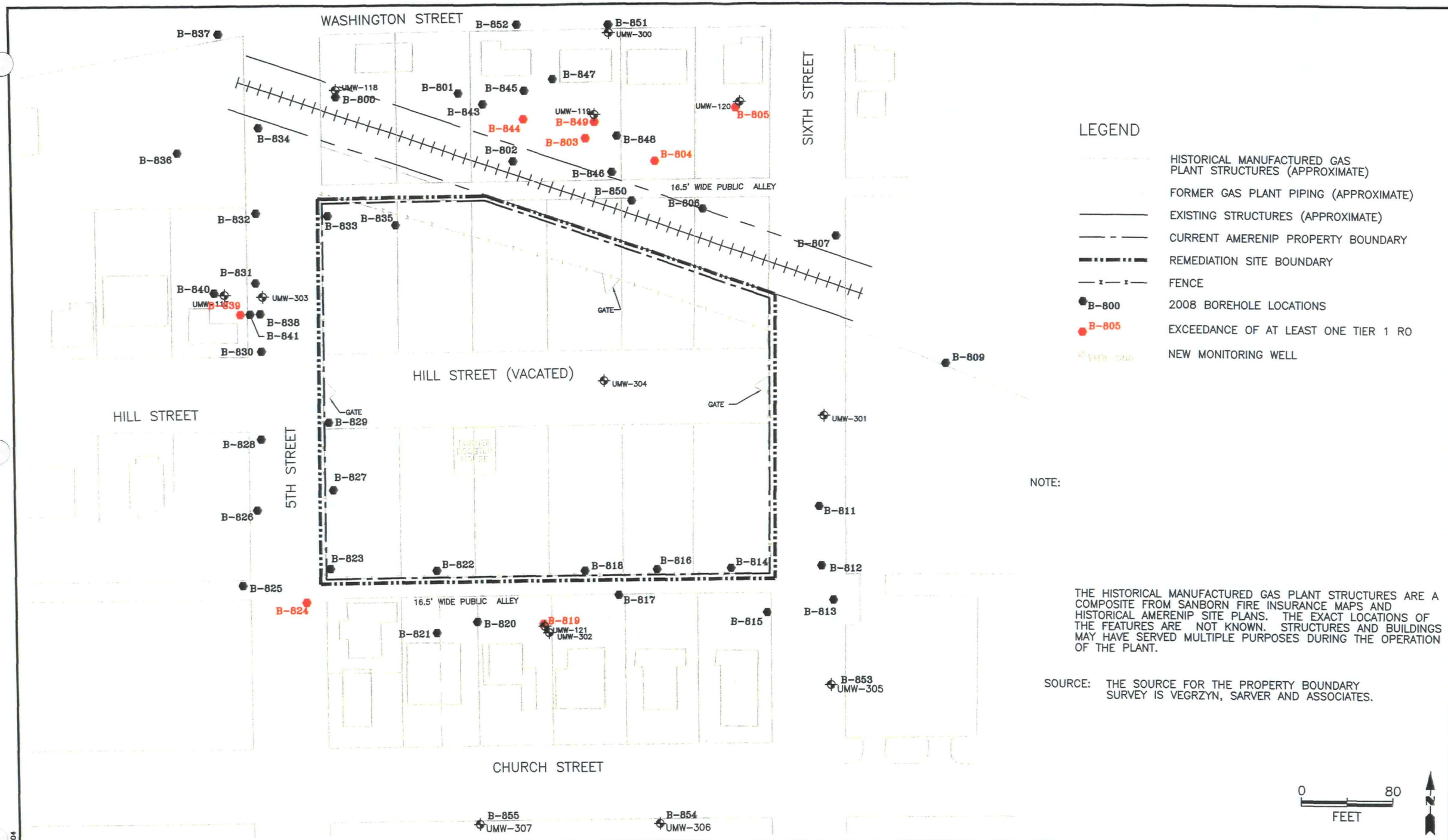
N

PSC

TITLE:
TIER 1 EXCEEDANCES – 0.0 TO 3.0 FOOT DEPTH INTERVAL
BTEX AND PAHs

DWN: TMM	DES: MRC	PROJECT NO: 62403053 AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 06/26/08	REV:	FIGURE 6–1

COL J:\624\028470-003



PSC

TITLE:

TIER 1 EXCEEDANCES – 0.0 TO 3.0 FOOT DEPTH INTERVAL
METALS AND CYANIDE

DWN: TMM	DES: MRC
CHKD:	APPD:
DATE: 06/26/08	REV:

PROJECT NO: 62403053
AMERENIP
CHAMPAIGN, ILLINOIS

FIGURE 6–2

COL J:\624\026470-004

WASHINGTON STREET

HILL STREET (VACATED)

HILL STREET

SIXTH STREET

5TH STREET

16.5' WIDE PUBLIC ALLEY

16.5' WIDE PUBLIC ALLEY

CHURCH STREET

GATE

GATE

GATE

B-800 B-801 B-802 B-803 B-804 B-805 B-806 B-807 B-808 B-809 B-810 B-811 B-812 B-813 B-814 B-815 B-816 B-817 B-818 B-819 B-820 B-821 B-822 B-823 B-824 B-825 B-826 B-827 B-828 B-829 B-830 B-831 B-832 B-833 B-834 B-835 B-836 B-837 B-838 B-839 B-840 B-841 B-843 B-844 B-845 B-846 B-847 B-848 B-849 B-850 B-851 B-852 B-853 B-854 B-855

UMW-117 UMW-118 UMW-119 UMW-120 UMW-121 UMW-300 UMW-301 UMW-302 UMW-303 UMW-304 UMW-305 UMW-306 UMW-307

LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- B-800 2008 BOREHOLE LOCATIONS
- B-846 EXCEEDANCE OF AT LEAST ONE TIER 1 RO
- NEW MONITORING WELL

NOTE:

THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

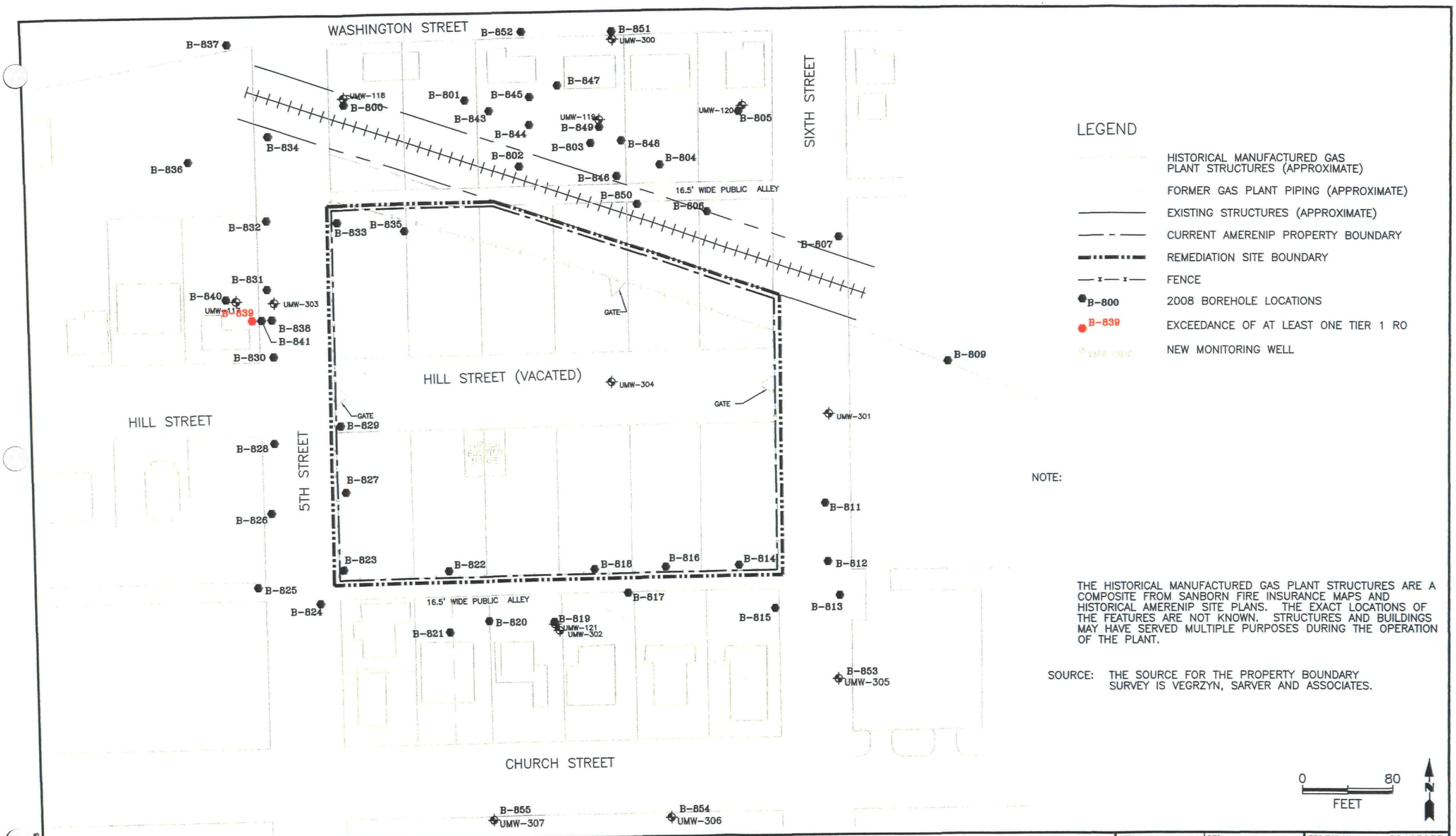
N

PSC

TITLE:
TIER 1 EXCEEDANCES – 3.0 TO 10.0 FOOT DEPTH INTERVAL
BTEX AND PAHs

DWN: TMM	DES: MRC	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 06/26/08	REV:	FIGURE 6–3	

COL J:\824\026470-005



PSC

TITLE:

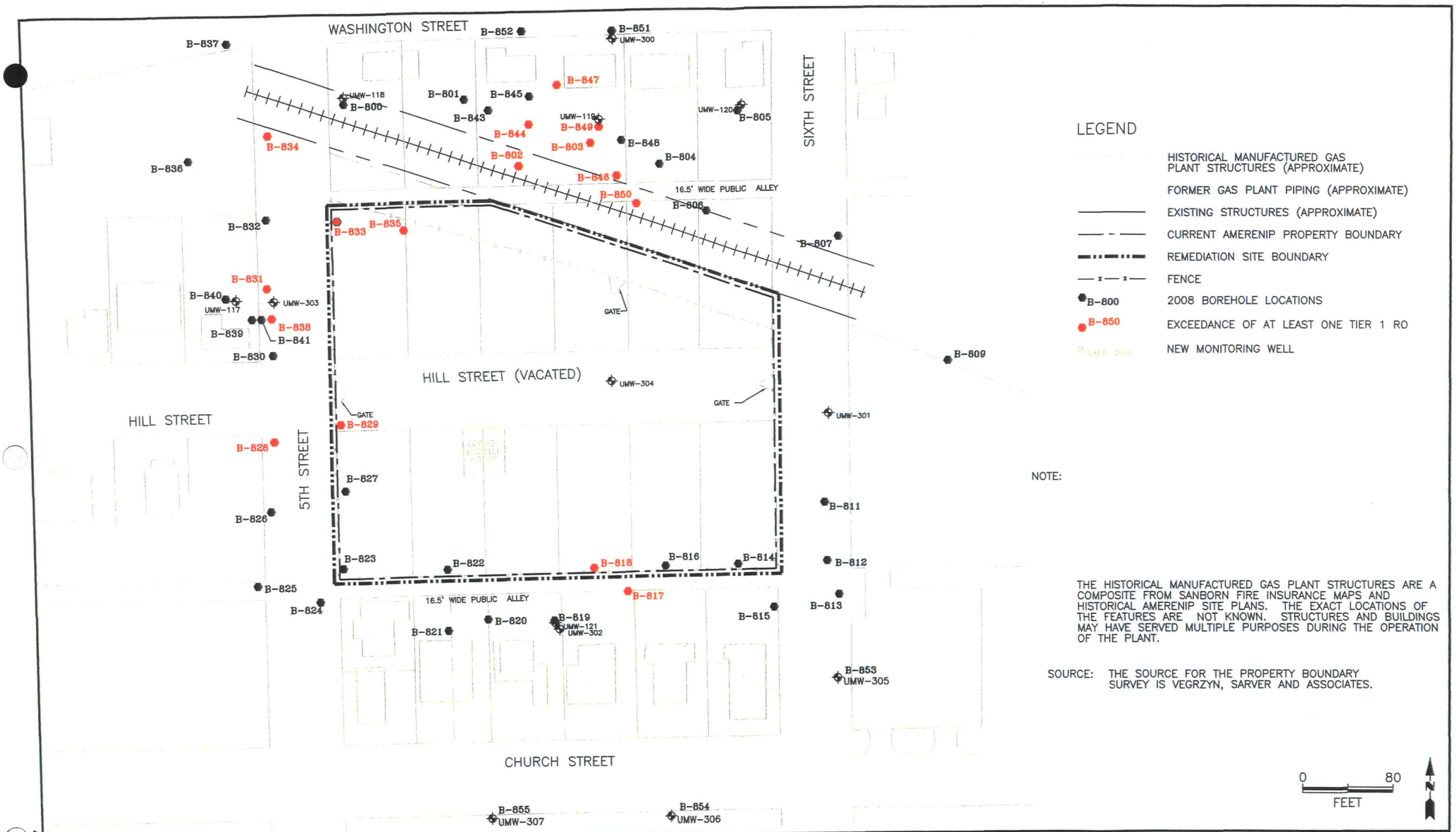
TIER 1 EXCEEDANCES – 3.0 TO 10.0 FOOT DEPTH INTERVAL
METALS AND CYANIDE

DWN: TMM	DES: MRC
CHKD:	APPD:
DATE: 06/26/08	REV:

PROJECT NO: 62403053
AMERENIP
CHAMPAIGN, ILLINOIS

FIGURE 6–4

COL J:\624\02847D-006



PSC

TITLE:

TIER 1 EXCEEDDANCES – GREATER THAN 10.0 FOOT DEPTH INTERVAL
BTEX AND PAHs

DWN: TMM	DES: MRC	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 06/26/08	REV:	FIGURE 6–5	

J:\624\026470–007
COL